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The following was presented for publication :—

“Contributions towards a Synopsis of the American forms of Fresh-Water Sponges with Descriptions of those named by other authors and from all parts of the world.” By Edw. Potts.

The death of Robert H. Hare, a member, was announced.

*On the Stipules of Magnolia Frazeri.*—Mr. Thomas Meehan exhibited some fresh flowers of *Magnolia Frazeri*, Walter—(*M. auriculata*, Lamarek), and said that when he contributed the paper on the “Stipules of *Magnolia* and *Liriodendron*” to the Proceedings of the Academy in 1870, he had not had the opportunity to examine fresh flowers of this species. It was not common in cultivation from the fact that the plants grown rarely produced seeds, and there had been little opportunities to get seeds from its North Carolina home. On his grounds of late years a specimen had annually borne flowers, which appeared very early, following immediately the flowers of the Yulan, and were as large and sweet as that species of China.

A point made in the paper referred to was that the petals of *Magnolia* were not modified leaves, as the petals of flowers would be broadly stated to be in morphological works but rather modified stipules, in which case the petiole and leaf blade have wholly aborted. At the time of its appearance, Dr. Asa Gray, to whose kindly criticisms on this and other papers he had been so often deeply indebted, wrote expressing his interest in the paper, saying that the observations confirmed the views of some German observer, whose name he could not recall, that the petals of many flowers were but modified stipules.

Mr. Meehan had not been able to meet with the name of the author or of the paper referred to by Dr. Gray, or the tenor of the author's views. Indeed his observations and those of the author referred to, must have been wholly overlooked by their co-laborers, or else the views have not commended themselves to their good judgment. For his own part the subsequent observations of nearly twenty years had convinced him that the petals of most flowers should be considered enlarged stipules or thinly dilated bases of petioles, rather than modified leaves, as we should understand this term. In many species of Roses, especially in *Rosa Kamtchatica*, and *Rosa cinnamomea* the stipules could be noted increasing, and the size of the leaf blade diminishing on the branch as it approached inflorescence. Often the tips of the sepals would develop to minute leaf blades, and in a few instances he had had seen the same appendages on abnormal petals. Often the stipules, especially in *Rosa Kamtchatica*, would have the red colors of the petals, when at the nodes immediately below the axis from which the peduncle proceeded. There could be no possible doubt in the minds of those who would carefully compare, and watch for occasional aberrations, that the petals of the rose were rather transformed stipules than complete leaves. Precisely the same process of development from stipules to

petals could be traced in some *Leguminosæ*, and especially in the common Red Field Clover.

When vegetation was arrested in its growth and bud scales were formed for the protection of the growth-germ for the next season, it was the stipule or dilated base of the petiole that formed the scale. This was evident to those who watched the bursting of the growth buds in spring of the species of *Fraxinus*, or of the Dwarf Horse Chestnut (*Aesculus parviflora*) common in gardens.

The formation of petals for the protection of the reproductive germ, was also the result of arrested vegetative growth, and we may safely assume that the same law operates on the stipules and petiolar bases, in the one case as in the other.

This *Magnolia* confirms these views, as already indicated in the paper referred to. The stipules increase in size, and the development of the leaf blade is arrested just in proportion as the true petals are approached, until the last one preceding the true flower is nearly as large as the petals, and of nearly their form and character. In some cases the stipule appears as a perfect petal, with not a of leaf blade left. The true sepal or petal has lost all trace of petiole or blade,—it is broadened at the base, and, we see, cannot be aught but the stipule modified.

The fact that the petals of flowers are rather the bases of petioles or stipules, than modifications of full typical leaves may not only be proved by such observations as have been referred to, but accords with that philosophy which would expect to find a uniform law result from uniform causes. For if, as cannot be doubted, the check vegetative growth produce petal a bud scale out of a stipule, the check to vegetative growth should produce a petal (a flower scale) out of the same typical form. The theory gives to morphological law a harmony of action that is wanting without it.

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MAY 17.

Mr. J. H. REDFIELD, in the chair.

Twenty-eight persons present.

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MAY 24.

Mr. CHAS. MORRIS, in the chair.

Twenty-nine persons present.

A paper entitled "Notes on the Anatomy of *Echidna hystrix*." By H. C. Chapman M. D., was presented for publication.

Permission was given to change the name of a communication presented October 19, 1886, by Prof. Wm. B. Scott, for publication in the Journal of the Academy, from "The Genera *Mesonyx* and *Pachyaena*, Cope." to "On some new and little-known Creodonts."